

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended) A polishing apparatus comprising:

a polishing table having a polishing surface, said polishing table being rotatable about an axis;

a top ring for holding and rotating a workpiece to be polished and pressing a surface of the workpiece against said polishing surface on said polishing table, said top ring having a holding surface for holding the workpiece thereon and a guide ring disposed around said holding surface of said top ring for retaining the workpiece;

a film thickness measuring device embedded in said polishing table, said film thickness measuring device including:

a light source facing the surface of the workpiece held by said top ring for applying light having a predetermined wavelength to a surface of the workpiece,

a spectroscope for separating light reflected from the surface of the workpiece, a sum of radial lengths of said light source and said spectroscope being larger than a radius of the workpiece said holding surface of said top ring, and

a charge coupled device array for capturing light separated by said spectroscope, wherein said film thickness measuring device is configured to scan an entire surface of the workpiece according to rotation of said top ring and said polishing table; and

a controller operable to analyze information captured by said charge coupled device array over an entire surface of the workpiece to obtain a film thickness at a desired point on the surface of the workpiece.

Claim 2 (Original) The polishing apparatus according to claim 1, wherein said charge coupled device array captures light having a single wavelength.

Claim 3 (Original) The polishing apparatus according to claim 1, wherein said charge coupled device array captures light having a plurality of wavelengths.

Claim 4 (Cancelled)

Claim 5 (Original) The polishing apparatus according to claim 1, wherein said controller filters a wavelength which is influenced by a polishing liquid used for polishing.

Claim 6 (Withdrawn) An electrolytic polishing apparatus comprising:
electrodes including a processing electrode, which is brought into contact with or close to a workpiece to be polished, and a feeding electrode to supply electric power to the workpiece;

a film thickness measuring device disposed adjacent to at least one of said electrodes, said film thickness measuring device including:

a light source for applying light having a predetermined wavelength to a surface of the workpiece;

a spectroscope for separating light reflected from the surface of the workpiece; and

a charge coupled device array for capturing light separated by said spectroscope; and

a controller operable to analyze information captured by said charge coupled device array over an entire surface of the workpiece to obtain a film thickness at a desired point on the surface of the workpiece.

Claim 7 (Withdrawn) The electrolytic polishing apparatus according to claim 6, wherein said charge coupled device array captures light having a single wavelength.

Claim 8 (Withdrawn) The electrolytic polishing apparatus according to claim 6, wherein said charge coupled device array captures light having a plurality of wavelengths.

Claim 9 (Withdrawn) The electrolytic polishing apparatus according to claim 6, wherein said film thickness measuring device has a radial length larger than a radius of the workpiece.

Claim 10 (Withdrawn) The electrolytic polishing apparatus according to claim 6, wherein said film thickness measuring device is disposed between said electrodes.

Claim 11 (Withdrawn) The electrolytic polishing apparatus according to claim 6, wherein said film thickness measuring device is disposed in parallel with said electrodes.

Claim 12 (Withdrawn) A polishing method comprising:

- bringing a workpiece into sliding contact with a polishing surface;
- pressing the workpiece against the polishing surface while supplying a polishing liquid to the polishing surface;
- applying light to the workpiece over an entire surface of the workpiece; and
- capturing light reflected from the workpiece over the entire surface of the workpiece.

Claim 13 (Withdrawn) The polishing method according to claim 12, further comprising:

- specifying a specific point on a surface of the workpiece based on at least one of a notch and an orientation flat formed in the workpiece; and
- obtaining a film thickness at the specific point from the light captured over the entire surface of the workpiece.

Claim 14 (Withdrawn) The polishing method according to claim 13, further comprising:

- controlling a pressure applied to the workpiece according to the film thickness.

Claim 15 (Withdrawn) The polishing method according to claim 13, further comprising:

- controlling an amount of the polishing liquid according to the film thickness.

Claim 16 (Currently Amended) A polishing apparatus comprising:

a polishing table having a polishing surface, said polishing table being rotatable about an axis;

a top ring for holding and rotating a workpiece to be polished and pressing the workpiece against said polishing surface on said polishing table, said top ring having a holding surface for holding the workpiece thereon and a guide ring disposed around said holding surface of said top ring for retaining the workpiece;

a film thickness measuring device embedded in said polishing table, said film thickness measuring device including:

a light source facing the surface of the workpiece held by said top ring for applying light having a predetermined wavelength to a surface of the workpiece,

a spectroscope for separating light reflected from the surface of the workpiece, a sum of radial lengths of said light source and said spectroscope being larger than a radius of ~~the workpiece~~ said holding surface of said top ring, wherein said film thickness measuring device is configured to scan an entire surface of the workpiece according to rotation of said top ring and said polishing table; and

a charge coupled device array for capturing light separated by said spectroscope; and

a controller operable to analyze information captured by said charge coupled device array over an entire surface of the workpiece.

Claim 17 (Currently Amended) A polishing apparatus comprising:

a polishing table having a polishing surface, said polishing table being rotatable about an axis;

a top ring for holding and rotating a workpiece to be polished and pressing the workpiece against said polishing surface on said polishing table, said top ring having a holding surface for holding the workpiece thereon and a guide ring disposed around said holding surface of said top ring for retaining the workpiece; and

a film thickness measuring device embedded in said polishing table, said film thickness measuring device including:

a light source facing the surface of the workpiece held by said top ring for applying light having a predetermined wavelength to a surface of the workpiece;

a spectroscope for separating light reflected from the surface of the workpiece, a sum of radial lengths of said light source and said spectroscope being larger than a radius of ~~the workpiece~~ said holding surface of said top ring; and

a charge coupled device array for capturing light separated by said spectroscope:

wherein said film thickness measuring device is configured to scan an entire surface of the workpiece according to rotation of said top ring and said polishing table.